CLAIMS

1. A compound of formula (I) or a salt thereof which are able to release COX-2 inhibitors and NO (nitrogen oxide) under conditions and according to the parameters set up in test 1 mentioned in the description

$$M\text{-}T\text{-}Y_A\text{-}NO_2$$

(I)

wherein:

M-T is the residue of a COX-2 selective inhibitor, in which T = $-SO_2NH-$, $-SO_2NR-$, -CO-, -O-, -S-, -NH-,$-N(SO_2R)-$, R being alkyl with 1-10 carbon atoms, wherein the COX-2 selective inhibitor, M-TH or M-TOH, has to meet test 2 mentioned in the description,

$Y_A = -(B)_{b0}-(C)_{c0}-$ wherein:

b0 e c0 are the integers 1 or 0, with the proviso that b0 and c0 cannot be simultaneously 0,

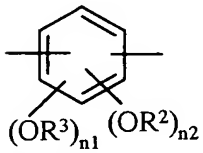
$B = -T_B-X_2-T_{BI}-$, in which:

T_B = CO or X, wherein X = O, S, NH, NR, and R is as defined above, T_B is CO when T is $-SO_2NH-$, $-SO_2NR-$ -O-, -S-, -NH-, $-N(SO_2R)-$, T_B is X when T is -CO-;

T_{BI} = CO or X, in which X is as defined above;

X_2 is a divalent radical and is selected from the following compounds:

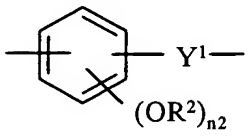
a)



wherein:

n1 and n2 are integers 0 or 1; $R^2$and R^3 are independently selected from H or CH_3;

b)

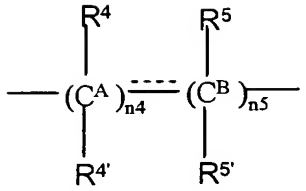


wherein:

n2 and R^2 are as above defined;

Y^1 is $-CH_2-CH_2-$ or $-CH=CH-(CH_2)_{n2}-$ wherein n2' is an integer 0 or 1;

c)



wherein:

n4 is an integer from 1 to 20 and n5 is an integer from 0 to 20, R^4, $R^{4'}$, R^5 and $R^{5'}$ are independently selected from H, CH_3, OH, NH_2, $NHCOCH_3$, COOH; when the bond between the C^A and C^B carbons is a double bond R^4 and R^5 or R4' and R^5 are absent;

C is the bivalent radical $-T_C-Y-$, wherein:

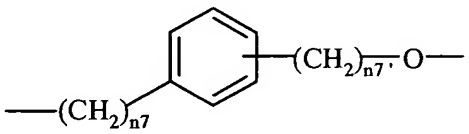
T_C = CO, X wherein X is as defined above, or $-(CH_2)_{n6}OC(O)-$ wherein n6 is an integer from 1 to 20;

Y is a bivalent radical having the following meanings:

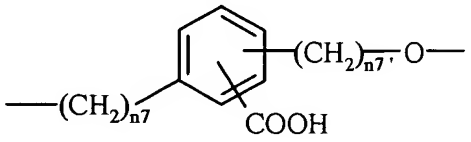
d) $-R^1O-$, in which R^1 is:

- straight or branched C_1-C_{20}-alkylene optionally containing one or more heteroatoms selected from oxygen, nitrogen, sulphur, or one or more groups -O(CO)-, -NH(CO)-, -S(CO)-, optionally substituted with one or more of the following groups –OH, -SH, $-NH_2$, $-NHCOR^6$, in which R^6 is straight or branched C_1-C_{10}-alkyl;
- cycloalkylene containing from 5 to 7 carbon atoms into cycloalkylene ring, wherein one or more carbon atoms can be replaced by heteroatoms selected from nitrogen, oxygen or sulphur, and the ring can be substituted with side chains R^6, R^6 being as defined above;

e)

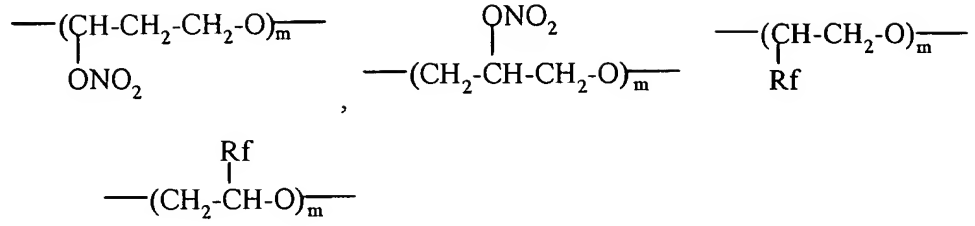


f)



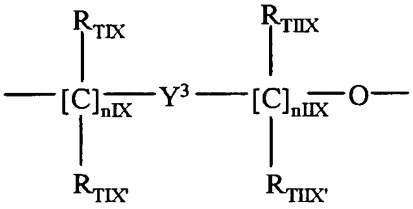
wherein n7 is an integer from 0 to 20, and n7' is an integer from 1 to 20;

g)



wherein m is an integer from 1 to 6, Rf is a hydrogen atom or CH_3;

h)



(IA)

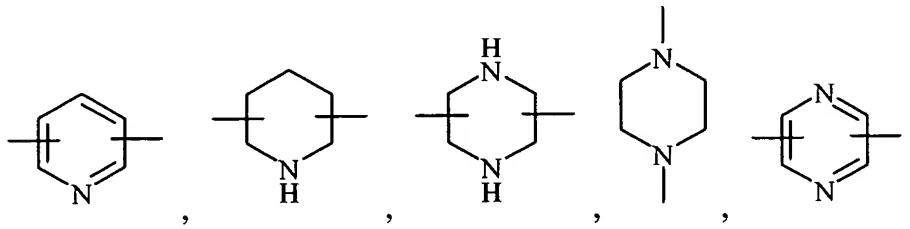
wherein:

nIX is an integer from 0 to 10;

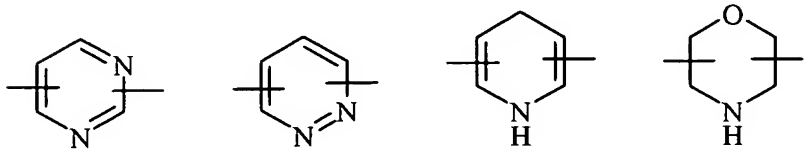
nIIX is an integer from 1 to 10;

R_{TIX}, $R_{TIX'}$, R_{TIIX}, $R_{TIIX'}$, are the same or different, and are H or straight or branched C_1-C_4-alkyl;

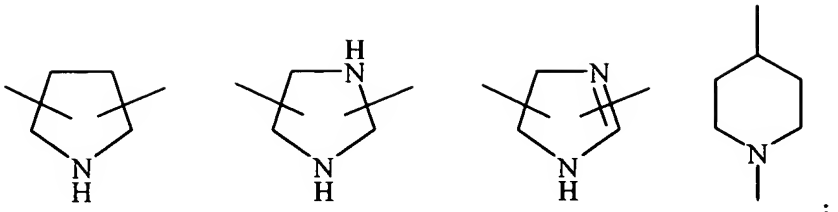
Y^3 is an heterocyclic saturated, unsaturated or aromatic 5 or 6 members ring, containing one or more heteroatoms selected from nitrogen, oxygen, sulphur, and selected from



(Y1) (Y2) (Y3) (Y4) (Y5)



(Y6) (Y7) (Y8) (Y9)



(Y10) (Y11) (Y12) (Y13)

with the proviso that:

when b0 = 0, c0 = 1 and T = -SO_2NH-, -SO_2NR-, -O-, -S-, -NH-, -$N(SO_2R)$- wherein R is as defined above, then T_C = (CO) or $-(CH_2)_{n6}O(CO)$-;

when b0 = 0, c0 = 1 and T = CO then T_C = X wherein X is as defined above;

when b0 = 1 and T = -SO_2NH-, -SO_2NR-, -O-,-S-, -NH-, -$N(SO_2R)$- wherein R is as defined above, then T_B = CO;

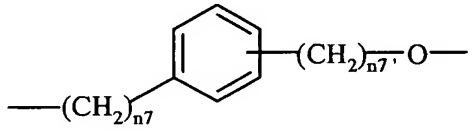
when b0 = 1 and T = CO then T_B = X wherein X is as defined above;

when b0 = 1, c0 = 1 and T_{B1} = CO then T_C = X wherein X is as above defined;

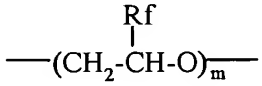
when b0 = 1, c0 = 1 and T_{B1} = X, wherein X is as above defined, then T_C = (CO);

when b0 = 1, c0 = 0 the T_{B1} has only the meaning of –O–;

2. A compound of formula (I) according to claim 1 wherein b0 =0, c0 = 1, T and T_C are as defined in claim 1, Y is a straight C_1-C_6 alkylene or



wherein n7 is 0 or 1, and n7' is 1 or 2, or



wherein m is 2, Rf is hydrogen.

3. A compound of formula (I) according to claim 2 wherein b0 =0, c0 = 1, T = -$N(SO_2R)$-, T_C = CO or $-(CH_2)_{n6}O(CO)$- wherein n_6 = 1 and R = CH_3.

4. A compound of formula (I) according to claim 2 wherein b0 =0, c0 = 1, T = -SO_2NH- and T_c = CO or $-(CH_2)_{n6}O(CO)$- wherein n_6 = 1.

5. A compound of formula (I) or a salt thereof according to claims 1 to 4 wherein M-T is e residue of a COX-2 selective inhibitor of formula M-TH or M-TOH selected from the group consisting of 4-(5-methyl-3-phenylisoxazol-4-yl)benzenesulfonamide, 4-[5-(4-methylphenyl)-3-(trifluoromethyl)-1H-pyrazol-1-yl]benzenesulfonamide, 4-(4-cyclohexyl-2-methyloxazol-5-yl)-2-fluorobenzenesulfonamide, N-[6-[(2,4-difluorophenyl)thio]-2,3-dihydro-1-oxo-1H-inden-5-yl]-methanesulfonamide, N-(4-nitro-2-phenoxyphenyl) methanesulfonanilide, N-(4-nitro-2-cyclohexyloxyphenyl)methane sulfonanilide, 2-[(2-chloro-6-fluorophenyl)amino]-5-methylbenzeneacetic acid, 2-[(2-chloro-6-fluorophenyl)-amino]-4-methylbenzeneacetic acid.

6. A compound according to claim 3, that is N-[6-(2,4-difluorophenylthio)-2,3-dihydro-1-oxo-1-inden-5-yl]-N-[(4-nitrooxy)butyroyloxymethyl] methanesulfonamide.

7. A compound according to claim 3, that is N-[6-(2,4-difluorophenylthio)-2,3-dihydro-1-oxo-1-inden-5-yl]-N-[3-(nitrooxymethyl)benzoyloxymethyl] methanesulfonamide.

8. A compound according to claim 3, that is (Z)-2-(4-methylsulphonylphenyl)-3-phenyl-2-buten-1,4-diol-1-[(4-nitrooxymetyl)-benzoate)].

9. A compound according to claim 4, that is N-[4-[5-(4-methylphenyl)-3-(trifluoromethyl)-1H-pyrazol-1-yl]phenylsulfonyl]-4-nitrooxybutanamide.

10. A compound according to claim 3, that is N-(3-nitrooxymethyl)benzoyloxymethyl-N-(2-phenoxy-4-nitrophenyl)methane-sulfonamide.

11. A compound of formula (I) or a salt thereof according to claims 1-10 as therapeutic agent.

12. Use of a compound of formula (I) or a salt thereof according to claims 1-10, for preparing a drug that can be employed in the treatment or prophylaxis of inflammatory disorders, pain and fever.

13. Use according to claim 12, characterized in that the inflammatory disorders are selected from the group consisting of, but not limited to, arthritis, reumatoid arthritis, osteoarthritis, dismenhorrea, allergic rhinitis, sinusitis, chronic obstructive pulmonary

diseases, dermatitis, psoriasis, cystic fibrosis, multiples sclerosis, vasculitis and organ transplant rejection.

14. Use of a compound of general formula (I) or a salt thereof according to claims 1-10, for preparing a drug that can be employed in the treatment or prophylaxis of cardiovascular diseases.

15. Use according to claim 14, characterized in that the cardiovascular diseases are selected from the group consisting of, but not limited to, atherosclerosis, restenosis, coronary artery disease, angina, diabetes mellitus, diabetic nephropathy, diabetic retinopathy, stroke and myocardic infarct.

16. Use of a compound of general formula (I) or a salt thereof according to claim 1-10, for preparing a drug that can be employed in the treatment or prophylaxis of gastrointestinal disorders.

17. Use according to claim 16, characterized in that the gastrointestinal disorders are selected from the group consisting of, but not limited to, inflammatory intestinal disorders, Crohn's disease, gastritis, ulcerative colitis, peptic ulcer, haemorrhagic ulcer, gastric hyperacidity, dyspepsia, gastroparesis, Zollinger-Ellison's syndrome, bacterial infections, hypersecretory states associated with systemic mastocytosis or basophilic leukaemia and hyperhystaminemia.

18. Use of a compound of general formula (I) or a salt thereof according to claim1-10, for preparing a drug that can be employed in the treatment or prophylaxis of tumors and Alzheimer's disease.

19. Use of a compound of general formula (I) or a salt thereof according to claim 1-10, for preparing a drug that can be employed for treating or preventing disorders resulting from elevated levels of COX-2.

20. Use according to claim 19, characterized in that the disorders resulting from elevated levels of COX-2 are selected from the group consisting of, but not limited to, angiogenesis, arthritis, asthma, bronchitis, menstrual cramps, tendinitis, bursitis, neoplasia, ophthalmic diseases, pulmonary inflammations, central nervous system

disorders, allergic rhinitis, atherosclerosis, endothelial disorders, organs and tissues preservation, inhibition and/or prevention of platelets aggregation.

21. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a compound of general formula (I) or a salt thereof according to claim 1-10.

22. A composition according to claim 21 in a suitable form for the oral, parenteral, rectal, topic and transdermic administration, by inhalation spray or aerosol or iontophoresis devices.

23. Liquid or solid pharmaceutical composition for oral, parenteral, rectal, topic and transdermic administration or inhalation in the form of tablets, capsules and pills eventually con enteric coating, powders, granules, gels, emulsions, solutions, suspensions, syrups, elixir, injectable forms, suppositories, in transdermal patches or liposomes, containing a compound of formula (I) according to claim 1-10 or a salt thereof and a pharmaceutically acceptable carrier.